APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/757,930	01/10/2001	Gamze Erten	ICA-9862	8079

7590	06/16/2004	**EXAMINER**
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ART UNIT	PAPER NUMBER
2174	

DATE MAILED: 06/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)
	09/757,930	ERTEN ET AL.
	Examiner	Art Unit
	Le Nguyen	2174

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *10 May 2004*.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21,29 and 30* is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21 and 29-30* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some *   c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

1.   This communication is responsive to Amendment B, filed 4/21/04.

2.   Claims 1-21 and 29-30 are pending in this application. Claims 1-9 and 11-21 have been

amended; claims 22-28 have been cancelled; and claims 29 and 30 have been added.

3.   The text of those sections of Title 35, U.S. Code not included in this action can be found

in a prior Office action.

Claim Rejections - 35 USC § 112

4.   The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the
> subject matter which the applicant regards as his invention.

Claims 11-16 rejected under 35 U.S.C. 112, second paragraph, as being indefinite for

failing to particularly point out and distinctly claim the subject matter which applicant regards as

the invention.

5.   Claim 11 recites the limitation "the pointing", "the display" and "the image" in line 2 of

claim 11. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6.   Claims 1-3, 6 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Filo et

al. ("Filo").

As per claim 1, Filo teaches a system for interacting with displays and all devices that use

such displays comprised of:

a) a display (col. 7, line 1 and lines 40-45);

b) a pointing object (fig. 4, *pointing object 72*);

c) a camera that has in its field of view at least one of the following: (i) the pointing

object only, or (ii) the display and the pointing object, or (iii) the display and the reflection or

effect that the pointing object can produce on the display (col. 9, lines 30-38 and lines 49-52; col.

7, lines 19-22 and lines 51-54; col. 11, lines 32-55; col. 13, lines 34-35 and lines 10-13, 15-16;

col. 14, lines 10-24);

d) a method for detecting the position of the pointing object or its reflection or effect on

the display in the image registered by the camera (col. 7, lines 18-20; col. 12, lines 26-34; col.

14, lines 10-19); and

e) a method for establishing the mapping between the position of the pointing object or

its reflection or effect on the display in the image registered by the camera and a corresponding

location on the display (fig. 10; col. 18, line 52 through col. 19, line 1; col. 7, lines 17-19; col.

12, lines 26-34; col. 14, lines 10-19).

As per claim 2, Filo teaches a system for interacting with displays and all devices that use

such displays which commands the positioning of a pointing icon on the display (figs. 4B, 8, 10

ad 11; col. 11, lines 32-55; col. 12, lines 26-35; col. 13, lines 34-35 and lines 10-13, 15-16; col.

9, lines 49-50).

As per claim 3, Filo teaches a system for interacting with displays and all devices that use

such displays wherein the system commands the input of data into the device using the display

(fig. 10; col. 18, line 52 through col. 19, line 1; col. 7, lines 17-19; col. 12, lines 26-34; col. 14,

lines 10-19).

As per claim 6, Filo teaches a system for interacting with displays and all devices that use such displays wherein the pointing object is used to select, highlight, or define a particular point or region on the display (col. 9, line 61 through col. 10, line 3; col. 12, lines 26-35).

As per claim 10, Filo teaches a system for interacting with displays and all devices which also includes at least one of the following (col. 9, line 49 through col. 10, line 22; col. 7, lines 40-49; col. 8, lines 10-21, 30-37; col. 11, lines 61-63; col. 13, lines 17-24; col. 14, lines 26-32):

a) a method for selecting or highlighting a specific item or icon on the display;

b) a method for activating a specific process, program, or menu item represented on the display; and

c) a method for writing, scribing, drawing, highlighting, annotating, or otherwise producing marks on the display.

7.   Claims 11-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Hansen.

As per claim 11, Hansen teaches a method for detecting a position of a pointing object or its reflection or effect on a display in an image registered by a camera comprising the steps of:

a) defining at least one characteristic of the pointing object or its reflection or effect on the display that (i) is registered in the image captured by the camera and (ii) distinguishes the pointing object from other objects registered in the image from the camera (col. 3, lines 28-40; col. 8, lines 30-49),

b) retrieving the image from the camera (col. 8, lines 12-20),

c) analyzing the image from the camera to locate the characteristic or characteristics of the pointing object or its reflection or effect on the display pointing object (col. 8, lines 12-50),

d) determining the most likely position of the pointing object or its reflection or effect on

the display in the image from the camera based on at least one of the following: (i) the last

known position of the pointing object or its reflection or effect on the display in the image, (ii)

the position or positions at which the at least one distinguishing characteristic of the pointing

object, or its reflection or effect on the display or the set of the picture elements in the image that

comprise the rendition of the pointing object, or its reflection or effect on the display (col. 4,

lines 27-31; col. 7, lines 18-27; col. 8, lines 40-45; col. 9, lines 3-25).

As per claim 12, Hansen teaches a method for detecting a position of a pointing object or

its reflection or effect on a display in an image registered by a camera wherein at least one

characteristic that distinguishes the pointing object from other objects in the image from the

camera is known a priori (col. 4, lines 55-56).

As per claims 13 and 14, Hansen teaches a method for detecting a position of a pointing

object or its reflection or effect on a display in an image registered by a camera wherein at least

one characteristic that distinguishes the pointing object from other objects in the image from the

camera are determined based on analysis of at least one set of the data acquired from the sensor

or one image acquired from the camera and whose rendition are present in the image from the

camera is obtained by acquiring at least two images from the camera, one with the pointing

object in view of the camera and one without, and comparing the two sets with one another (col.

4, lines 15-41; col. 7, lines 18-27; col. 8, lines 38-45).

As per claim 15, Hansen teaches a method for detecting a position of a pointing object or

its reflection or effect on a display in an image registered by a camera wherein adjustments or

modifications are made to the position, viewing angles, sensitivity, and other settings of the

camera pursuant the analysis of the data or image retrieved from the camera (col. 4, lines 12-18).

As per claim 16, Filo teaches a method for detecting a position of a pointing object or its

reflection or effect on a display in an image registered by a camera wherein at least part of the

procedures for the method is carried out using at least in part the computing mechanism available

on one or more of the following: the display, or the camera, or the pointing device, or the device

producing the signal shown on the display, or the device producing the pointing icon on the

display (fig. 1; col. 2, line 66 through col. 3, line 55).

Claim Rejections - 35 USC § 103

8.   Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Filo in view of

Hansen.

As per claim 8, although Filo teaches a system for interacting with displays and all

devices that use such displays wherein the pointing icon on the display can be registered by the

sensor (figs. 2B, 8, 10 and 11; col. 11, lines 43-46; col. 12, lines 31-32; *the sensor having*

camera capabilities, i.e. by definition, a camera is the part of a television transmitting apparatus

that receives the primary image and transforms it into electrical impulses), Filo does not

explicitly disclose the pointing icon being registered by the camera. Hansen teaches a pointing

icon being registered by a camera (col. 4, lines 27-31; col. 7, lines 18-27; col. 8, lines 40-45; col.

9, lines 3-25). Therefore, it would have been obvious to an artisan at the time of the invention to

include Hansen's pointing icon being registered by a camera to Filo's pointing icon being

registered by a sensor in order to provide users with an alternate and/or a greater variety of signal receiving devices.

9.   Claims 17-21, 29 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hansen in view of Filo.

As per claims 17 and 29, Hansen teaches a method for establishing a mapping between the set of positions that a pointing object can assume in addressing a set of corresponding points or regions on the display comprising the steps of defining the boundaries of the positions that the pointing object can assume in addressing points or regions on the display and defining the boundaries of the display (Abstract; col. 3, lines 21-42; col. 3, line 63 through col. 4, line 8), defining the boundaries of the display and defining within the boundaries of the display, a continuous pointing object surface (Abstract; col. 3, lines 21-42; col. 3, line 63 through col. 4, line 8), warping the geometry of the surface for the pointing object so that at least one region of the pointing object surface overlaps with at least one region of the display surface and establishing a one-to-one or many to one correspondence between overlapping the said region of the pointing object surface and display surface, respectively (col. 7, lines 13-20; *the geometry of the pointing object surface is scaled or warped so that regions of the pointing object surface have an area in common with/overlaps with a region of the display surface to establish a one-to-one or many to one correspondence between regions of the pointing object surface and display surface)*. However, Hansen does not explicitly disclose segmenting the display surface and pointing object surface into at least two regions. Filo teaches a method for establishing a mapping between the set of positions that a pointing object can assume in addressing a set of corresponding points or regions on the display comprising segmenting the display surface and

pointing object surface into at least two regions (col. 3, lines 38-42; col. 12, lines 26-35; col. 14, lines 10-24; *segments of the display corresponds with segments of pointing object surface selected and wherein detecting a display perspective is inherent when there is already a method for detecting the pointing device in an interactive virtual world environment*) and warping the geometry of the surface for the pointing object so that at least one region of the pointing object surface overlaps with at least one region of the display surface to establish a one-to-one or many to one correspondence between overlapping the said region of the pointing object surface and display surface (col. 17, line 33 through col. 18, line 24; col. 18, line 52 through col. 19, line 5). Therefore, it would have been obvious to an artisan at the time of the invention to include Filo's method for establishing a mapping between the set of positions that a pointing object can assume in addressing a set of corresponding points or regions on the display comprising segmenting the display surface and pointing object surface into at least two regions to Hansen's method for establishing a mapping between the set of positions that a pointing object can assume in addressing a set of corresponding points or regions on the display in order to provide users with the ability to compartmentalize or organize areas of focus according to content.

As per claim 18, the modified Hansen teaches a method for establishing a mapping between the set of positions that a pointing object can assume in addressing a set of corresponding points or regions on the display wherein the boundaries of the set of positions that the pointing object can assume are obtained by querying the user to point to the boundaries (Hansen: Abstract; col. 3, lines 21-42; col. 3, line 63 through col. 4, line 8; Filo: col. 12, lines 5-22; col. 12, lines 26-35; col. 14, lines 10-24).

As per claim 19, the modified Hansen teaches a method for establishing a mapping

between the set of positions that a pointing object can assume in addressing a set of

corresponding points or regions on the display wherein the boundaries of the set of positions that

the pointing object can assume are obtained by contours or the periphery of the display surface as

the display is present in the image from the camera (Hansen: Abstract; fig. 1; Filo: col. 12, lines

5-22).

As per claim 20, the modified Hansen teaches a method for establishing a mapping

between the set of positions that a pointing object can assume in addressing a set of

corresponding points or regions on the display wherein the regions of the display surface

comprise at least two sets of pixel elements that comprise the image on the display (Hansen: col.

5, lines 1-15; Filo: col. 12, lines 5-22).

As per claim 21, the modified Hansen teaches a method for establishing a mapping

between the set of positions that a pointing object can assume in addressing a set of

corresponding points on the display wherein at least part of the procedures for the method is

carried out using at least in part the computing mechanism available on one or more of the

following: the display, or the camera, or the pointing object, or the device producing the signal

shown on the display, or the device producing the pointing icon on the display (Hansen: fig. 1;

col. 2, line 66 through col. 3, line 55; Filo: figs. 1 and 2; col. 6, lines 6-66).

As per claim 30, the modified Hansen teaches a method for establishing a mapping

between the regions of a display and an image of the same display obtained from a camera

wherein at least one special image is rendered on the display for establishing a mapping between

the regions of a display and an image of the same display obtained from a camera (Filo: figs. 2B,

8, 10 and 11; col. 11, lines 43-46; col. 12, lines 31-32; col. 18, line 52 through col. 19, line 5).

10.   Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Filo et al. ("Filo")

in view of Edwards et al. ("Edwards").

As per claim 7, Filo teaches a system for interacting with displays and all devices that use

such displays comprising a pointing object for entering information into the system and can be

used in conjunction with various software applications (col. 7, lines 46-54; col. 8, lines 16-35;

col. 10, lines 24-31 and line 57; col. 13, lines 21-25; *information entered into the system further*

include a clipboard on which a user can draw). Filo does not explicitly disclose the pointing

object to be used to define a vector on the plane of the display that indicates a direction and

magnitude relative to or with respect to an item on the display or a region of the display.

Edwards teaches a system for interacting with displays wherein the pointing object to be used to

define a vector on the plane of the display that indicates a direction and magnitude relative to or

with respect to an item on the display or a region of the display (col. 8, lines 12-21). Therefore, it

would have been obvious to an artisan at the time of the invention to include Edwards' teaching

of a computer aided design tool, wherein the pointing object to be used to define a vector on the

plane of the display that indicates a direction and magnitude relative to or with respect to an item

on the display or a region of the display, to Filo's teaching of a system for interacting with

displays that includes drawing capabilities to provide users with an environment capable of

incorporating multiple applications and capabilities to enhance a user's individual task.

11.   Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Filo et al. ("Filo",

US 6,215,498 B1) in view of Applicant's Admitted prior art.

As per claim 9, although Filo teaches a system for interacting with displays and all

devices that use such displays which also includes a method for sensing the pointing object's

position relative to the position of a pointer icon on the display (col. 7, lines 1-19), Filo does not

explicitly disclose the system to include a method for correcting the offsets between the position

of the pointing object, or reflection, or effect thereof on the display as observed by the user or by

the camera, and the position of the pointer icon on the display. However, Applicant's admitted

prior art teaches a system for interacting with displays and all devices that use such displays to

include a method for correcting the offsets between the position of the pointing object, or

reflection, or effect thereof on the display as observed by the user or by the sensor or the camera,

and the position of the pointer icon on the display (page 21, lines 6-9). Therefore, it would have

been obvious to an artisan at the time of the invention to include Applicant admitted prior art's

teaching of a system for correcting the offsets between the position of the pointing object and the

position of the pointer icon on the display to Filo's method of a system for sensing the pointing

object's position relative to the position of a pointer icon on the display in order to reduce the

margin of error concerning the position of the pointing object and the position of the pointer icon

on the display.

12.   Claim 4-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Filo et al.

("Filo", US 6,215,498 B1).

As per claim 4, although Filo teaches a system for interacting with displays and all

devices that use such displays wherein the pointing object is a part of the body of a user of the

system such as the hand or the finger, or an ornament or an object or device worn on the body

such as a glove or thimble, Filo does not explicitly disclose the camera being remote from the

human body (figs. 2(A-B), 4, 5(A-B) and 11). Official Notice is given that a camera being

remote from the pointing object is well known in the art. Therefore, it would have been obvious

to an artisan at the time of the invention to include sensors or camera being remote from the

human body to Filo's teaching of sensors or cameras in order to provide users with an

implementation preference.

As per claim 5, Filo teaches a system for interacting with displays and all devices that use

such displays wherein the pointing object is used to point to regions of the display by way of

changing its position, attitude, or presentation (col. 9, line 61 through col. 10, line 3).

Response to Arguments

13.   Applicant's arguments with respect to claims have been considered but are moot in view

of the new ground(s) of rejection, except for the following:

Filo does not show or disclose a method for detecting the position of the pointing object

or its reflection or effect on the display in the image registered by the camera wherein the

reflection or the effect on the display covers a laser pointer shining on a projected screen.

The Examiner disagrees for the following reasons:

In response to applicant's argument that the references fail to show certain features of

applicant's invention, it is noted that the features upon which applicant relies (i.e., the reflection

or the effect on the display covers *a laser pointer shining on a projected screen*) are not recited

in the rejected claim(s). Although the claims are interpreted in light of the specification,

limitations from the specification are not read into the claims. See *In re Van Geuns*, 988

F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993). However, Filo does teach a method for detecting

the position of the pointing object or its reflection or effect on the display in the image registered

by the camera (col. 7, lines 19-20).

Inquires

14.   Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Examiner Lê whose telephone number is **(703) 305-7601**. The

examiner can normally be reached on Monday - Friday from 5:30 am to 2:00 pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Kristine Kincaid, can be reached on (703) 308-0640.

The fax numbers for the organization where this application or proceeding is assigned are

as follows:

(703) 872-9306 [Official Communication]

Any inquiry of a general nature or relating to the status of this application or proceeding

should be directed to the receptionist whose telephone number is (703) 305-3900.

LVN
Patent Examiner
June 7, 2004

KRISTINE KINCAID
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100